



# Pennsylvania Water Planning



Shared Resource...Shared Responsibility



*Bushkill Falls, Pike County  
Photo by Tim Devine*

*“The people have a right to clean air, pure water, and  
to the preservation of the natural, scenic, historic and  
aesthetic values of the environment...”  
—Pennsylvania State Constitution, Article I, Section 27*



# Water Planning: Then, Now and in the Future

## Our Heritage

Pennsylvania has a rich history that helped shape our nation. Coal, lumber and fertile farmlands prepared our forefathers with the necessary ingredients to build a vibrant economy. Water played a key role in the establishment of the first settlements and since has been essential to the development of the commonwealth, just as its natural beauty has forever been a source of inspiration to its residents. A diverse land, connected by miles of rivers and streams and dotted with lakes and ponds, comprises the essential elements that sustain a quality way of life.



*Chambersburg, Franklin County*

## Vast Natural Resources

With more than 86,000 miles of streams and over 1,400 lakes, reservoirs and ponds, Pennsylvania

still enjoys the plentiful natural resources that played such an important role throughout our history. Lake Erie and the rivers that flow through our great cities help drive the economic engine that creates jobs and supports our fertile farms, while offering recreational opportunities and the water necessary for everyday life.

Sustaining that quality of life we all enjoy requires careful attention to the issues surrounding our water resources. The following pages provide an overview of how Pennsylvania's State Water Plan can be used to help carefully balance the needs of all users and avoid the potential conflicts that can develop. By providing better information to make better decisions, we can continue to make our commonwealth a great place to live, work and play, and still be surrounded by our rich natural resources.

*Oil Creek & Titusville Railroad,  
Titusville, Venango County*





*Loyalsock Creek, Forksville, Sullivan County*

*Periodic droughts are inevitable, but if potential problems are recognized and planned for accordingly, the impact of drought on people, businesses and the state's economy can be reduced.*

*—Penn State College of Agricultural Sciences*



# Why Water Planning is Important in Pennsylvania

Water affects nearly every aspect of our lives. Everyone who lives, works or travels in Pennsylvania enjoys the economic, recreational and aesthetic value it provides. In recent years, competing demands have stressed the quantity and quality of water supplies in many areas across the commonwealth. Conflicts over water have developed, and rapidly have become a costly and disruptive problem.

Some areas of Pennsylvania are facing potential constraints on water use depending on the local resources available and the demand being placed on that limited supply. Still others are challenged



*Philly FUN Fishing Fest on the Schuylkill River  
Photo courtesy of Philadelphia Water Department*

with capitalizing on opportunities where our water resources are plentiful. With proper planning, our water resources are capable of serving multiple uses in a balanced manner, ensuring a clean and sufficient supply is available to everyone.

Natural threats also challenge our efforts to maintain a healthy water supply. Pennsylvania is one of the most flood-prone states in the country. Major disasters such as Hurricane Agnes in 1972 and numerous other storms, both prior to and since then, have caused millions of dollars worth of damage. Periods of drought have adversely affected our potable water supply, farming and many industries.

Yet in these challenges, we are presented with opportunities to plan for and implement effective water management measures. Protecting our watersheds and ensuring sufficient groundwater recharge will preserve a sustainable supply of drinking water. Careful attention to stormwater runoff and smart land development practices can mitigate the damaging effects of flooding. Good stewardship, sound science and a plan that provides information for making wise choices about water in Pennsylvania will support and enhance the quality of life in our state.



*State College, Centre County*

Every Pennsylvanian can affect the quantity and quality of our water resources. The State Water Plan offers the resources needed for anyone to make informed decisions that will allow us all to continue to enjoy our streams, woods and wildlife, and help keep Pennsylvania industry and agriculture vibrant.



*Old City Water Works, Philadelphia*

*Philadelphia's water department, established in 1801, was the first in America to supply an entire city with drinking water. Fairmount Park, one of the nation's largest urban parks, was established to protect Philadelphia's drinking water supply.*



# Meeting Needs in an Environmentally Responsible Manner

## Water Supply and Wastewater Management

Many Pennsylvanians rely on wells, but the majority of consumers depend on public systems to provide their water. There are more than 2,100 community water supply systems in the state serving over 10.5 million people. While the water source for the majority of these systems is groundwater, surface water also plays an important role, especially in our larger metropolitan areas.

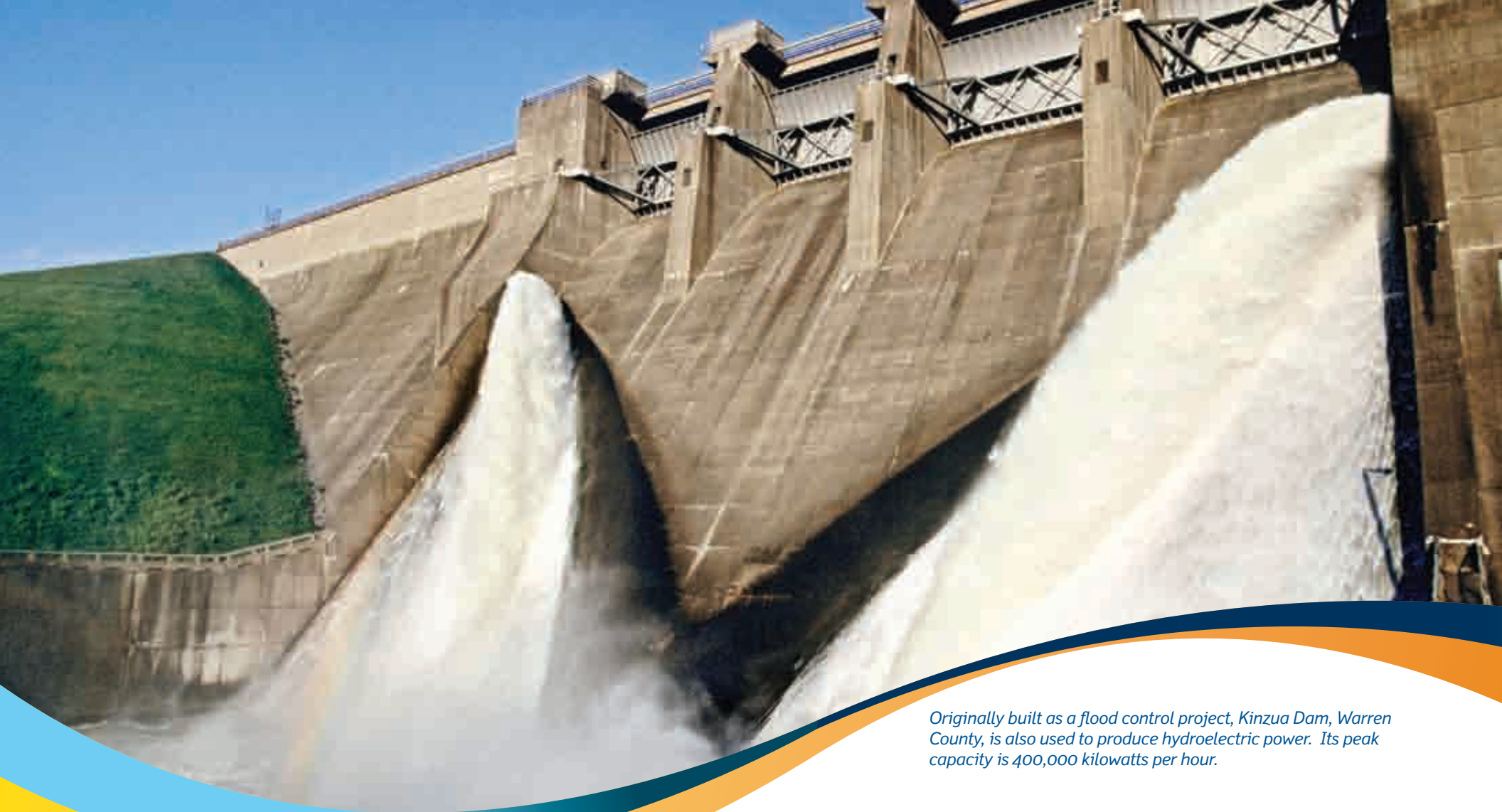
When properly planned and operated, wastewater collection and treatment systems allow water to be reused again and again. Innovative water treatment technologies continue to provide new opportunities for wastewater reuse.

The State Water Plan will help planners determine how to meet current and future water supply and wastewater disposal needs by projecting community growth and development. Comprehensive land use planning, where available, is also an excellent tool to help those assessing the wastewater disposal needs of a community or group of communities.



*Constructed wetlands receiving reuse water  
University Area Joint Authority  
State College, Centre County*

*Bowman's Hill Wildflower Preserve  
Bucks County*



*Originally built as a flood control project, Kinzua Dam, Warren County, is also used to produce hydroelectric power. Its peak capacity is 400,000 kilowatts per hour.*

*Pennsylvania's industries find success here by utilizing easy access to major U.S. market areas; means to move products efficiently by ground, air and water; and a highly skilled and well-educated workforce. Our water resources are also a vital element to ensure this success into the future.*



# Proud History... Bright Future

## Industry

Pennsylvania was our nation's first manufacturing center and today manufacturers employ nearly 661,000 Pennsylvanians. We are home to many traditional industrial operations such as steelmaking and heavy manufacturing, as well as new industries producing wind turbines, solar panels and cruise ships.

Most manufacturing processes require water in one form or another. Water is used for process steam, cooling, cleaning and a myriad of other uses. Moreover, electricity generation

represents the single largest use of water in the commonwealth, illustrated by the chart on this page. With demand for electricity increasing steadily in Pennsylvania and throughout the region, water becomes an even more vital resource.

Clean and abundant water resources are an important consideration when determining where to invest and grow. Without a plentiful and reliable water supply, companies will look to expand and create jobs outside of Pennsylvania. The State Water Plan will help meet the needs of a growing economy while providing the quality of life necessary to retain a skilled and educated workforce that is critical for operating a successful business.

*Shrewsbury lumber mill  
York County*



**Thermoelectric**  
**72%**

**Public  
Water Supply**  
**16%**

**Industry**  
**9%**

**Mining**

**Agriculture**

**Commercial**

*Total Water Withdrawals in Pennsylvania  
Source: Pennsylvania Department of Environmental Protection, 2003*



*Port Royal, Juniata County*

*Approximately 58,000 farm families rely on Pennsylvania's water resources to ensure a safe and affordable food supply.*



# Raised in Pennsylvania

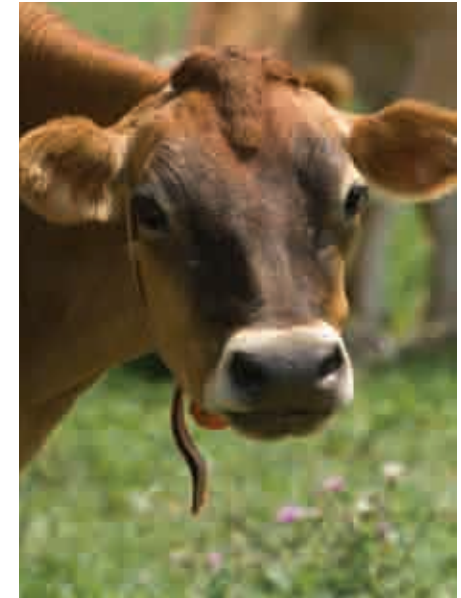
## Agriculture and Food Processing

Farmers are the original stewards of the land, and as agriculture is Pennsylvania's largest industry, they continue to play a key role in making sure we have a healthy environment as well as a vibrant economy. Farmers understand better than anyone that water is a strategically important resource that can provide a competitive advantage and ensure sustained economic growth.

Pennsylvania boasts some of the most productive farmland in the United States. Pennsylvania leads the nation in the production of several food crops, livestock, horticulture and horticultural crops, and virtually all of the furniture-quality hardwoods (maple, ash, cherry). We are also leaders in the production of chocolate, baked goods, poultry, processed meats, soups, dairy products, snack foods, beverages and many other processed products.

Next to soil, water is the most important ingredient necessary to grow crops and feed livestock. With proper planning we can balance various needs for our water resources. Water conservation technologies, such as drip irrigation methods, make it possible for us to more efficiently operate our farms. Nutrient management programs and runoff mitigation can help preserve the quality of our rivers and streams.

The State Water Plan offers information to provide for a readily available supply of quality water necessary for operating a farm or food production facility. With clean fresh water we can preserve these key drivers of our economic engine and our traditional way of life.



*Farmers Market, Erie County*



*Whitewater rafting, Ohiopyle State Park  
Fayette County*

*Fishing and boating activities contribute more than \$2.5 billion annually to Pennsylvania's economy. These activities are dependent on healthy water resources.*

*—Pennsylvania Fish and Boat Commission*



# Pennsylvania: A Great Place to Live, Work and Play

## Recreation and Tourism

Water resources sustain our wild areas, provide waterways for us to enjoy, and support recreational opportunities for residents and visitors. Recreation and water are often inextricably linked. Small trout streams, grand rivers and tranquil lakes provide recreational opportunities, while the rivers that flow through our cities reflect majestic skylines.

The health and maintenance of these waterways are closely tied to wise water use decisions practiced by everyone on a daily basis. Individual efforts in water conservation within the home and business positively affect the waterways. Whether

you enjoy fishing, boating, water-skiing or hiking along a mountainside stream, protecting our water resources is important for future enjoyment of these activities.

Effective management and planning for the future are key to ensuring the social and economic benefits of water-based recreation and tourism in Pennsylvania. Through the State Water Plan we will know how much water we have, how much water we use, and what the demand will be in the future to help balance the preservation of our water resources and the promotion of tourism in Pennsylvania.

*Effective management and planning for the future are key to ensuring the social and economic benefits of water-based recreation and tourism in Pennsylvania.*

*Ice fishing, Warren County Winterfest  
Chapman State Park, Clarendon  
Warren County*



*Fly fishing, Coburn, Centre County*



*Tubing, Delaware Water Gap  
Monroe County*



*Bowman's Hill Wildflower Preserve  
Bucks County*

*In 1937, the Pennsylvania Clean Streams Law was signed. It is the objective of the Clean Streams Law to prevent pollution of the waters of the commonwealth, and to reclaim and restore polluted streams.*



# Surrounded by Natural Beauty

In the commonwealth, we make many demands on our water resources. In addition to its value for drinking and the countless other ways we depend on it daily, water adds quality to our lives in an aesthetic sense. Clean rivers, lakes and ponds improve our lives by providing relaxing scenic vistas, habitats for wildlife and recreational opportunities. This “quality of life” makes Pennsylvania an enjoyable place to live and work.

To maintain this high quality of living and a healthy environment, we must all do our part in caring for our water resources. Water conservation and proper disposal of waste and chemicals are just a few small actions we can take that will go a long way toward maintaining healthy waterways. The State Water Plan will contain an assessment of water resources that are critical to protecting our scenic, aesthetic and unique features of the commonwealth.

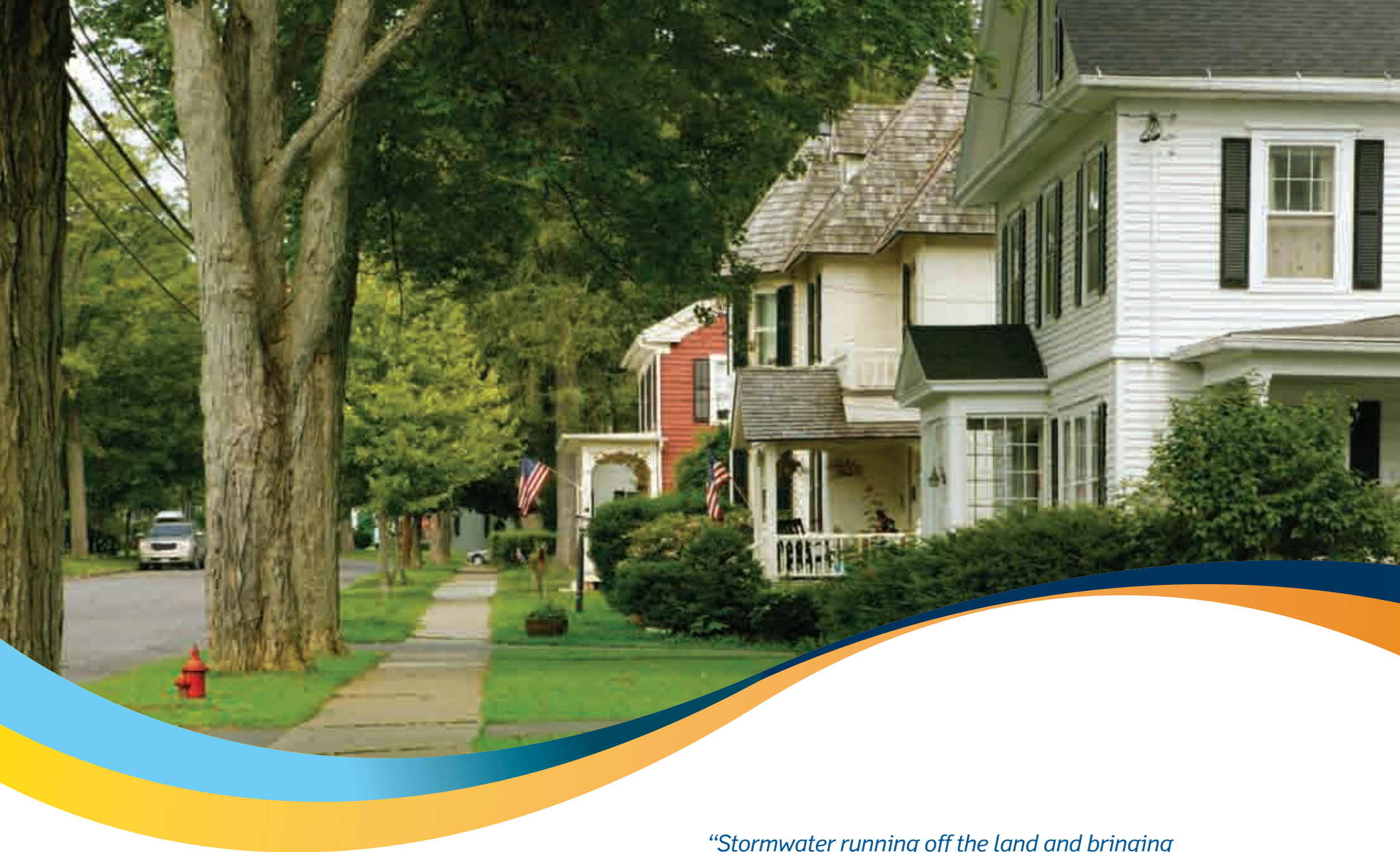


*Autumn in Potter County*

*Our rich natural resources so essential to our industrial growth now offer the setting for a diverse array of outdoor recreational pursuits and quality of life experiences.*

*Great Blue Heron, Presque Isle State Park  
Erie County*





*“Stormwater running off the land and bringing with it pollutants causes 80% to 90% of the pollution in our rivers today.”*

*Fairmount Water Works Interpretive Center*



# Providing Water for Growing Businesses and Communities

## Land Development

Pennsylvania's great cities, and indeed many of its towns, are located along significant rivers or Lake Erie. Protection of these resources and their recharge areas helps maintain a quality water supply for new and existing developed areas.

Suburbanization and commercial development in rural areas are challenges to water resource planners. The design of development, new and old, together with polluted runoff, construction sediment and the elimination of natural features that filter water can have a dramatic effect on the quantity and quality of water resources.

Historical approaches to managing stormwater runoff have exacerbated flood risks and have adversely affected the quality of streams. By managing stormwater as a resource rather than as a waste, a host of opportunities are available to protect the environment and complement new development.

In some areas, local streams or groundwater resources provide water for new homes, schools and businesses. Failure to properly plan and identify sustainable areas for development can create conflicts, increase costs and diminish the quality of our natural resources.

The State Water Plan offers a tool for land use regulators to effectively plan future development with the appropriate water resources in mind to offer vibrant, clean and beautiful communities that Pennsylvania families and businesses are proud to call home.



*Pittsburgh, Allegheny County*

*Harrisburg, Dauphin County*



*Wetland constructed as part of a mine reclamation project in Gulich Township, Clearfield County*

*The Pittsburgh coal seam is the richest and most heavily mined mineral deposit in the world, with near continuous mining since the late 1700s.*



# Pennsylvania's Coal Heritage

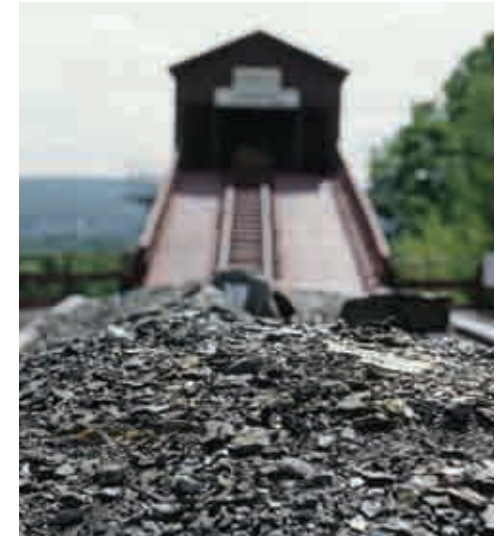
## Mining

Pennsylvania is a remarkable state with abundant natural riches, including a tremendous heritage of coal production that fueled the industrial revolution and provided hardworking residents with opportunities for a better life. Currently, Pennsylvania is the fourth largest coal mining state and has two of the highest producing underground coal mines in the United States. Current mining operations take precautions to protect our natural resources.

Extraordinary efforts are underway to protect and to reclaim the problem areas from past mining activities by reclaiming mines, improving water

quality by addressing the root cause of the past pollution problems, and developing plans to improve overall stream quality.

Where water impacted by mining once was seen only as a liability, new perspectives are developing. Old underground mines and surface quarries can act as reservoirs, storing water for future use. Mine waters that are effectively treated can be reused. The development of new technologies has the potential to convert some of the nation's worst mine pollution into an asset that will create new jobs and finance the restoration of waterways.



*Coal mine tour site, Scranton,  
Lackawanna County*



*Pittsburgh skyline, Allegheny County*

*A typical Ohio River tow of 15 barges can move the same amount of cargo as 225 rail cars or 900 semi-trucks—reducing highway congestion and saving money.*

*– American Society of Civil Engineers 2006  
Navigable Waterways*



# Delivering Goods to Market

## Navigation on Pennsylvania Waters

Delivering goods to market extends beyond land-based transportation in Pennsylvania. The ports in Pittsburgh move more than 44 million tons of waterborne cargo each year. Over 3,000 ships load and offload at the Port of Philadelphia each year — making it one of the busiest ports on the Atlantic coast and the fourth largest port in the U.S. for the handling of imported goods.

According to one study, the maritime industry accounts for approximately 260,000 direct, indirect and induced jobs. Clearly, planning for

navigation needs is important to modern life and sustaining a healthy economy.

The State Water Plan provides an assessment of navigation needs and the means for restoring, developing and improving water transportation. This assessment will provide a broader view of navigation in Pennsylvania and help identify what gaps or shortfalls may exist. Long-term planning will help ensure that water navigation continues to support the Pennsylvania economy in a manner that protects our precious natural resources.



*Lake Erie, Erie County*

*Barge, Delaware River  
Philadelphia County*





*Brady's Bend, Armstrong County*

*Until now, Pennsylvania has never had a water resources planning program that involves all stakeholders engaged in an effort to answer basic questions such as how much water we have, how much water we use and how much water we need.*



# Pennsylvania State Water Plan

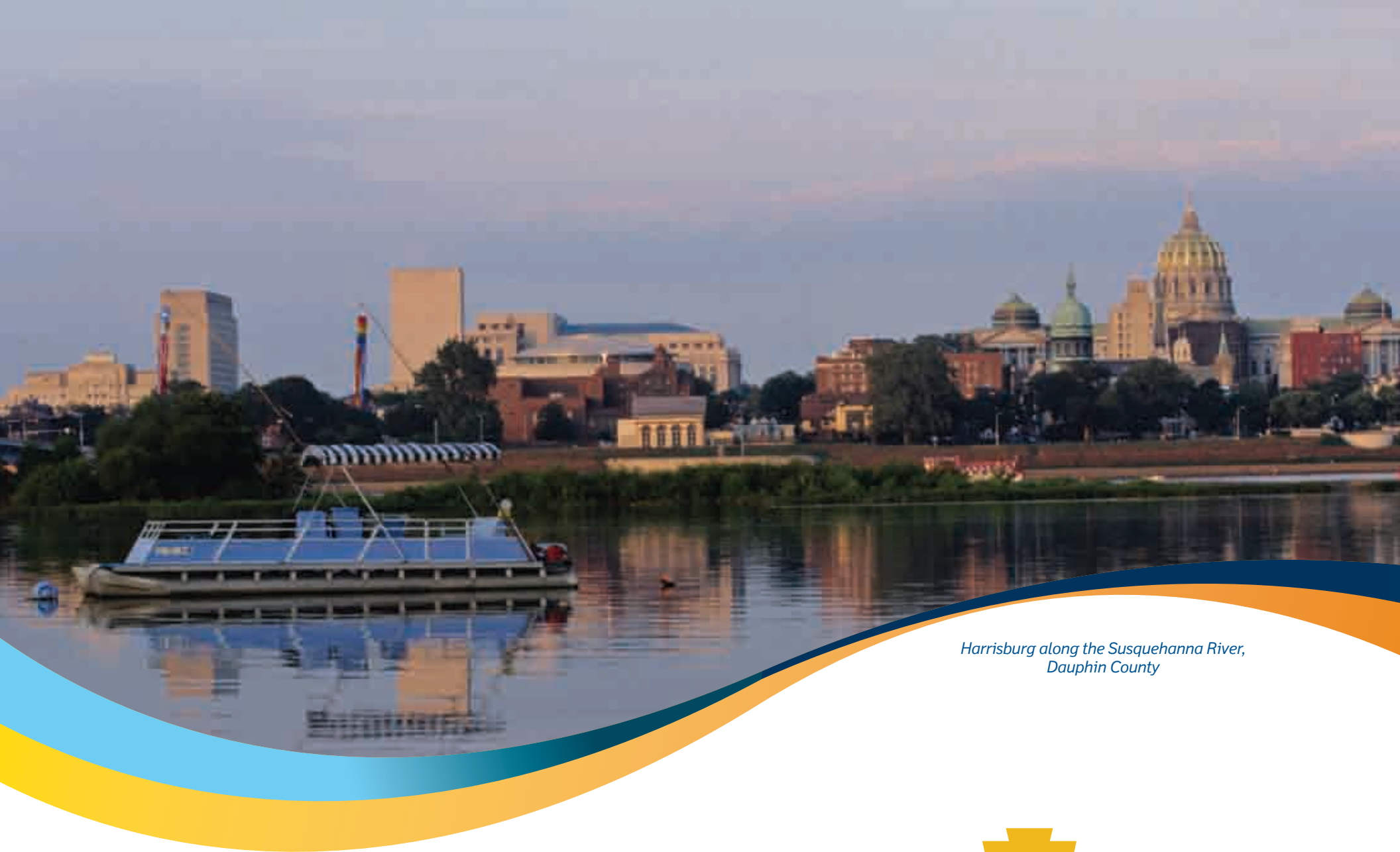
Pennsylvania has a proud history, abundant natural resources and many scenic treasures of unparalleled beauty. Managing the delicate balance of competing water resource needs with this heritage is a challenge that is being addressed in the commonwealth. Through the State Water Plan we will answer the basic questions of how much water we have, how much water we use and how much water we need.

Providing for a collaborative process, a Statewide Water Resources Committee was formed to help guide the development of the State Water Plan. Representing Pennsylvania's geographic diversity, six regional water resources committees were also created to facilitate the development of the regional components of the State Water Plan and to identify areas where the demand for water may exceed available supplies.

Key to the State Water Plan is the promotion of voluntary water conservation and water use efficiency practices for all water users. A Water Resources Technical Assistance Center will be created to promote the use and development of water conservation and water use efficiency education and technical assistance programs.

The State Water Plan is a tool to carefully balance the needs of multiple users and avoid potential conflicts that may develop between competing water users. By providing better information to make better decisions, we can continue to make the commonwealth a great place to live, work and recreate, and still be surrounded by beautiful natural resources.

*For more information on the State Water Plan, visit [www.depweb.state.pa.us](http://www.depweb.state.pa.us), keyword: Water Resources.*



*Harrisburg along the Susquehanna River,  
Dauphin County*



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**Commonwealth of Pennsylvania**  
**Edward G. Rendell, Governor**